# Wearable noninvasive glucose sensor based on $Cu_xO$ NFs/Cu NPs nanocomposites

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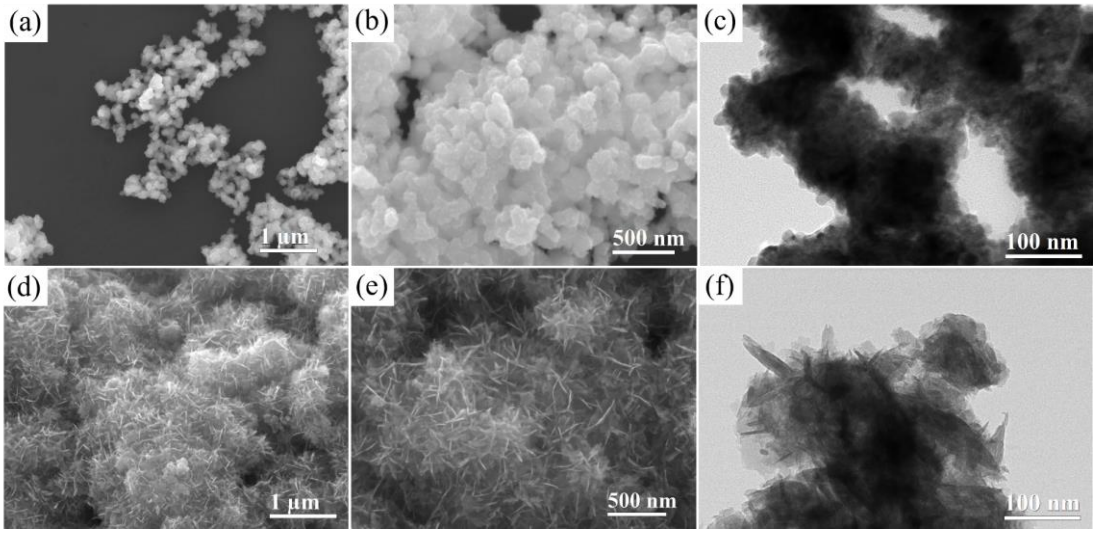



**Figure S1**. SEM and TEM images of **(a-b)**, **(c)** Cu NPs and **(d-e)**, **(f)** CuO NFs/Cu NPs nanocomposites.

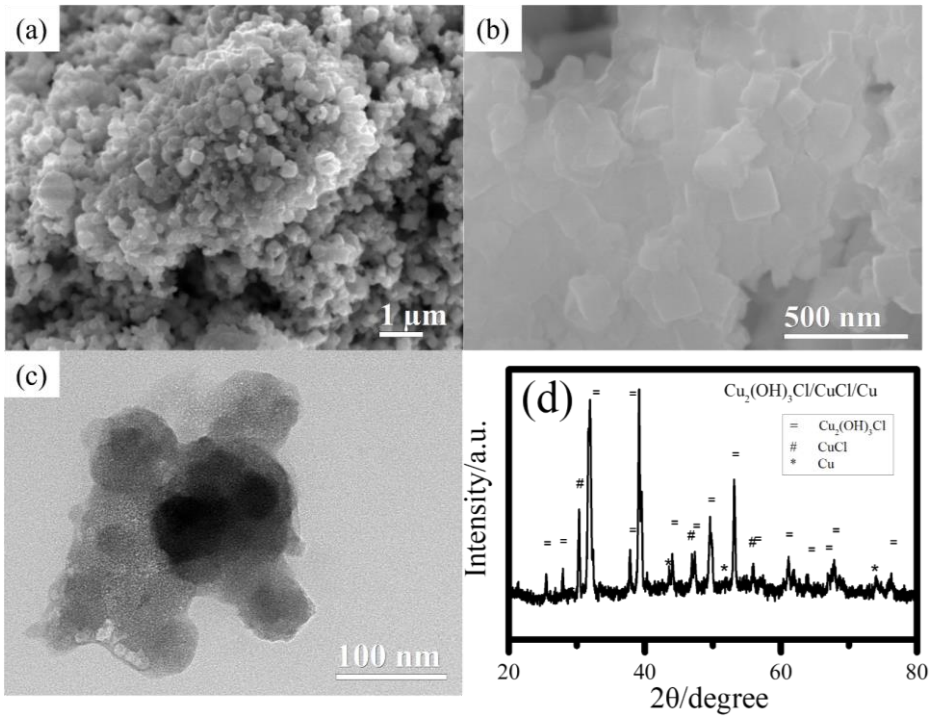



**Figure S2. (a, b)** SEM, **(c)** TEM images and **(d)** XRD pattern of intermediate product $Cu_2(OH)_3Cl$/CuCl/Cu NPs nanocomposite.

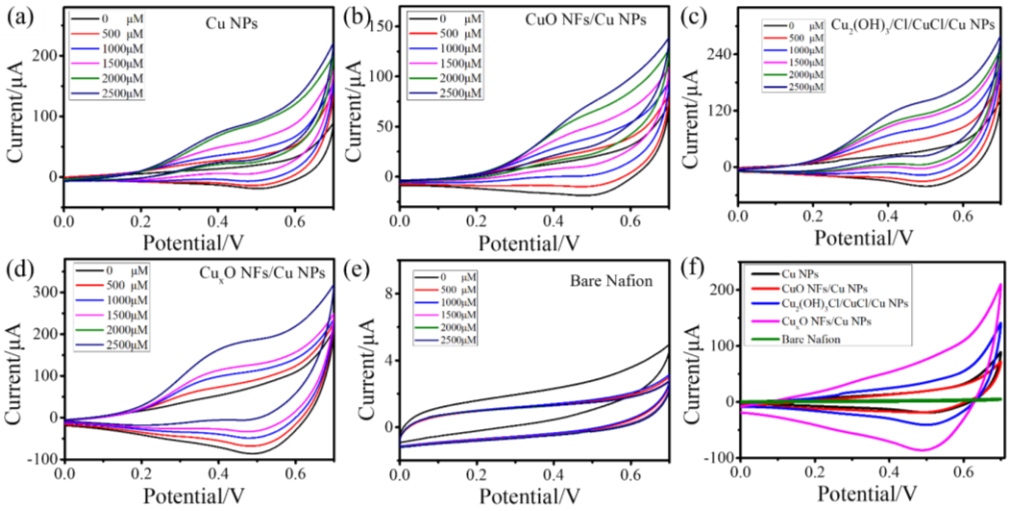



**Figure S3**. CVs performed in varied glucose concentration with **(a)** Cu NPs, **(b)** CuO NFs/Cu NPs nanocomposites, **(c)** $Cu_2(OH)_3Cl/CuCl/Cu$ NPs nanocomposite, **(d)** $Cu_xO$ NFs/Cu NPs nanocomposites, **(e)** bare Nafion at the 100 mV/s scanning rate. **(f)** CVs performed with different samples without the presence of glucose.

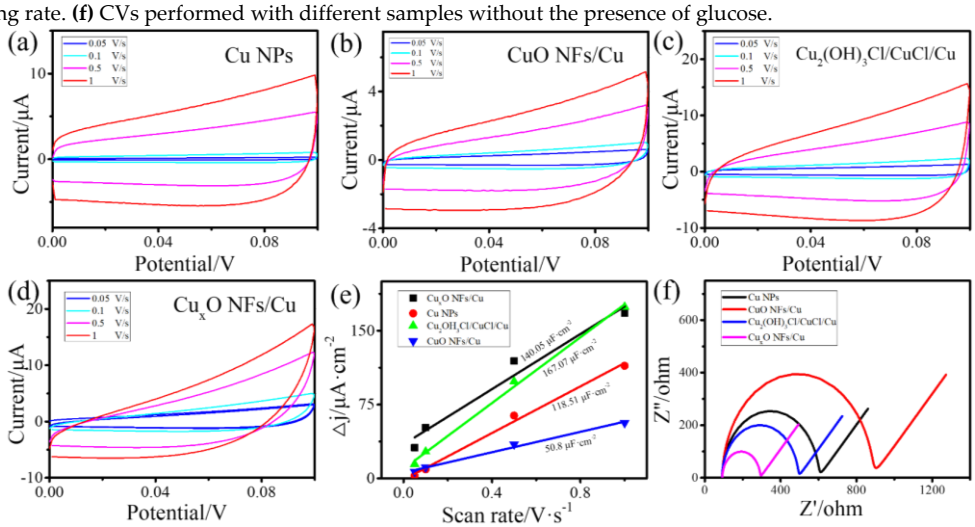



**Figure S4.** CVs performed in varied scan rates for ECSA measurement with **(a)** Cu NPs, **(b)** CuO NFs/Cu NPs nanocomposites, **(c)** $Cu_2(OH)_3Cl/CuCl/Cu$ NPs nanocomposites, **(d)**$Cu_xO$ NFs/Cu NPs nanocomposites. **(e)** The extracted calibration curves of a current response versus the scan rate with different samples. **(f)** EIS fitting performed with different samples without glucose.

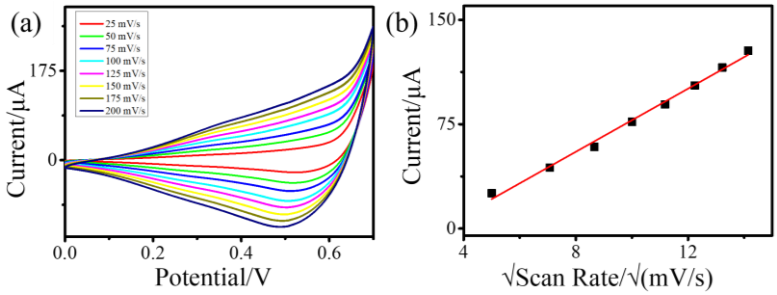



**Figure S5**. **(a)** CV performed in 1.0 mM glucose with variation of the scanning rate on $Cu_xO$ NFs/Cu NPs nanocomposites and **(b)** Oxidation current density at +0.55 V on the speed of scanning rate.

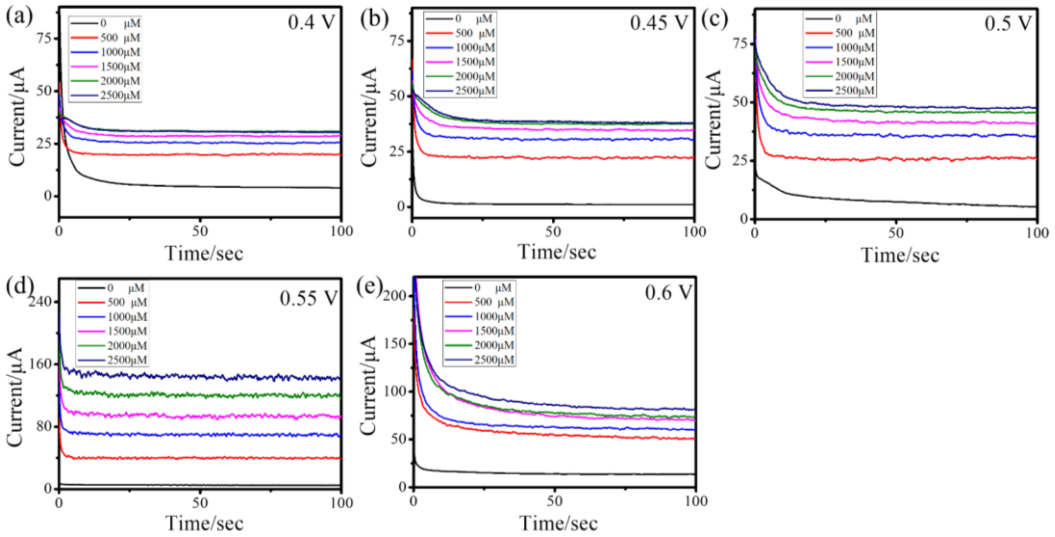



**Figure S6**. Amperometric response of $Cu_xO$ NFs/Cu NPs nanocomposite-based sensor by a stepwise increase of the glucose concentration with **(a)** +0.4 V, **(b)** +0.45 V, **(c)** +0.5 V, **(d)** +0.55 V, **(e)** +0.6 V.

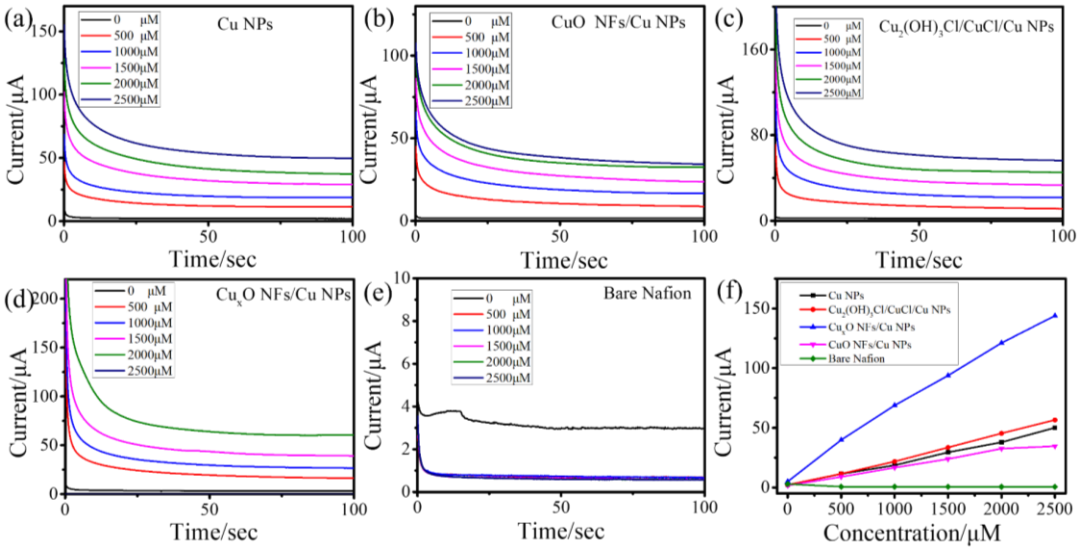



**Figure S7**. Amperometric response by a stepwise increase of the glucose concentration with **(a)** Cu NPs, **(b)** CuO NFs/Cu NPs nanocomposite, **(c)** $Cu_2(OH)_3Cl$/CuCl/Cu NPs nanocomposite, **(d)** $Cu_xO$ NFs/Cu NPs nanocomposite, **(e)** bare Nafion and **(f)** the extract amperometric curve of three sensors.